



SPATIAL DYNAMICS OF ALPINE TREELINE ECOTONES IN THE WESTERN UNITED STATES

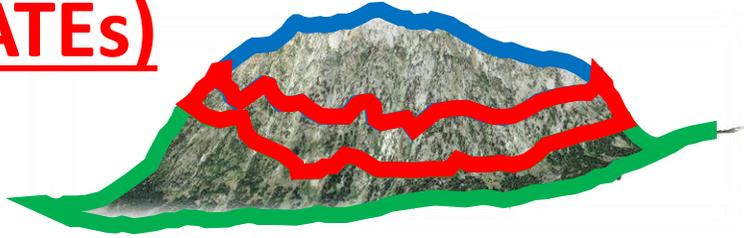
Chenyang Wei (Student) & *Adam M. Wilson, Ph.D.* (Advisor)

The State University of New York at Buffalo

NASA Biodiversity and Ecological Forecasting Team Meeting

May 21-23, 2019 ~ Washington, D.C.

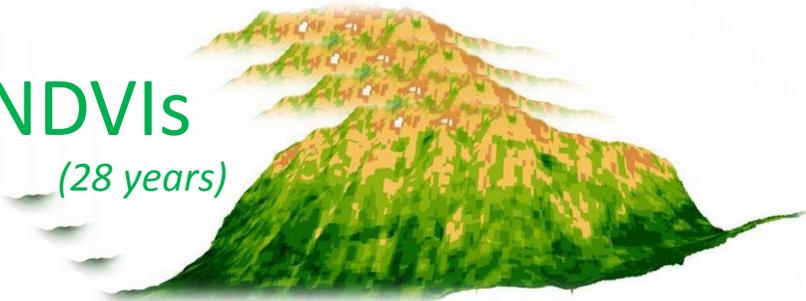
Alpine Treeline Ecotones (ATEs)



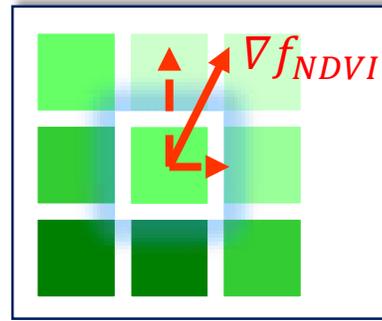
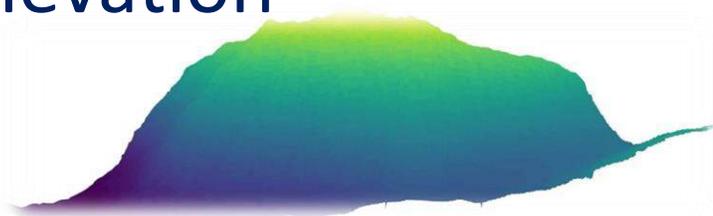
(Google Earth Image)



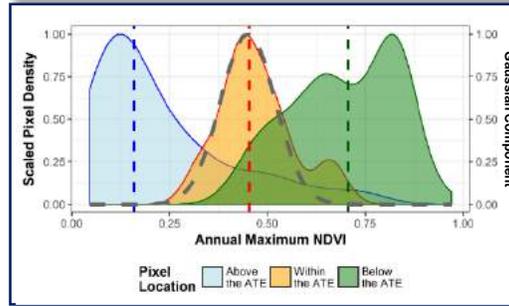
NDVIs
(28 years)



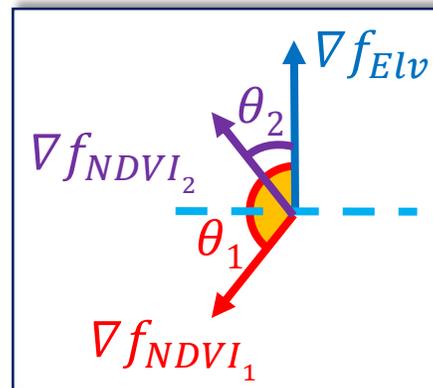
Elevation



$$C_1 = \|\nabla f_{NDVI}\|$$

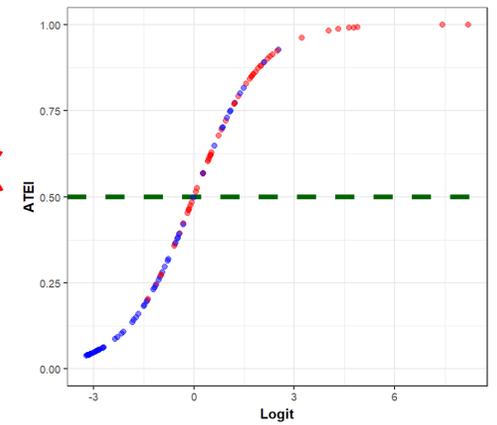


$$C_2 = ae^{-\frac{(f_{NDVI}-b)^2}{2c^2}}$$



$$C_3 = \frac{(1 - \cos \theta)^n}{2^n}$$

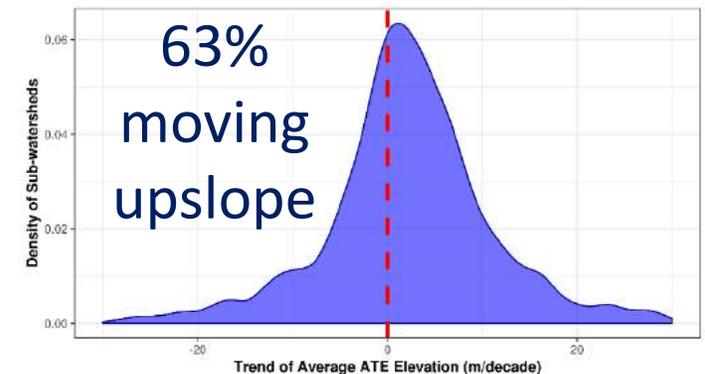
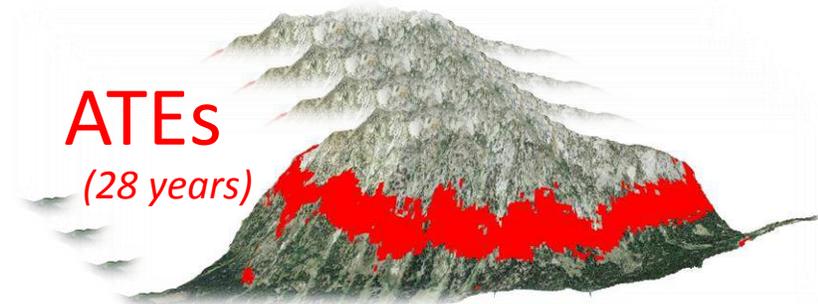
ATE Index



ATE Classification • Out of the ATE • Within the ATE



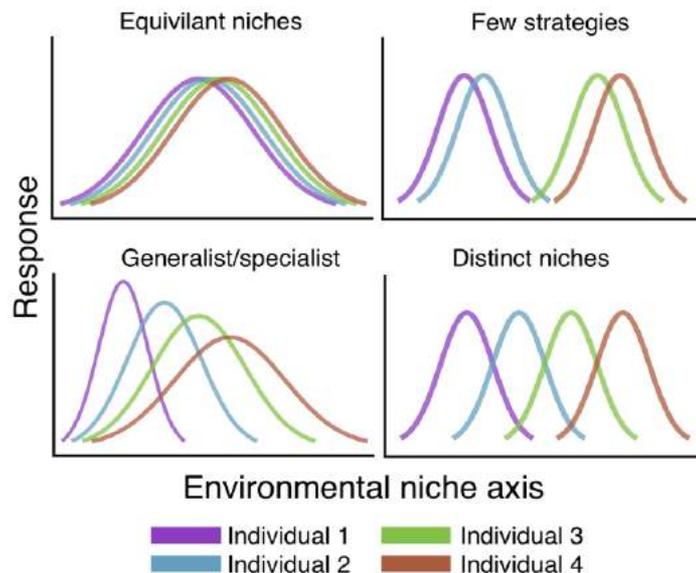
ATEs
(28 years)



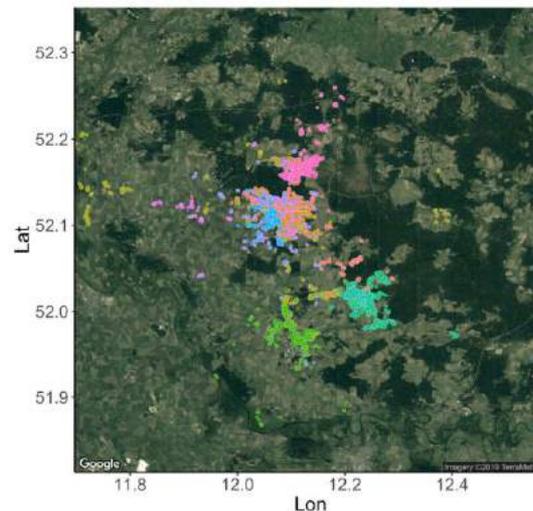
Individual variation in environmental niches revealed by animal tracking and remote sensing

Ben Carlson¹, Shay Rotics², Ran Nathan², Martin Wikelski³, Walter Jetz¹

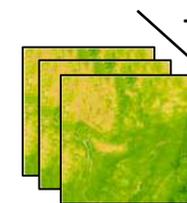
How might individual niches vary?



Capture individual niche using animal tracking and remote sensing

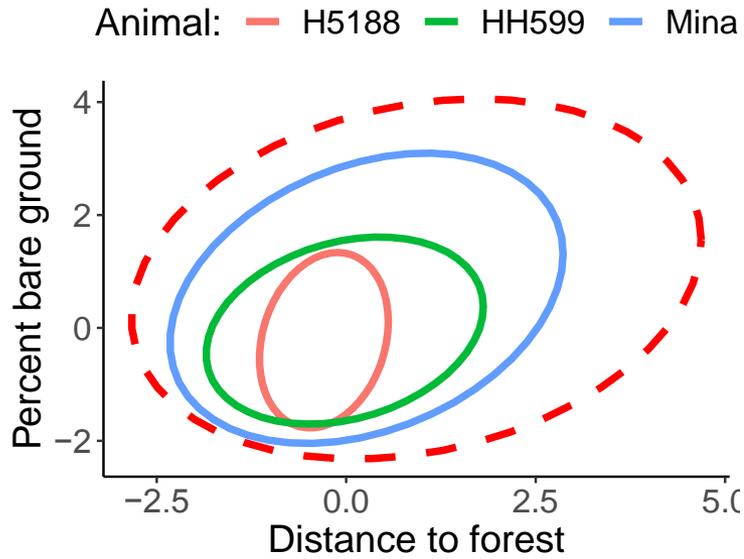


Percent Tree Cover
Percent Bare
Distance to forest

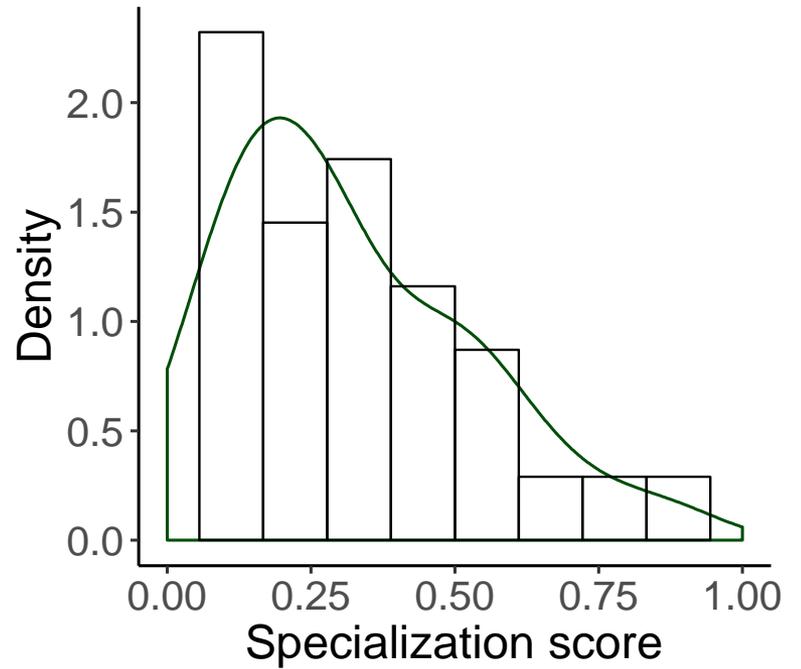


Time
16-day NDVI
Monthly distance to water

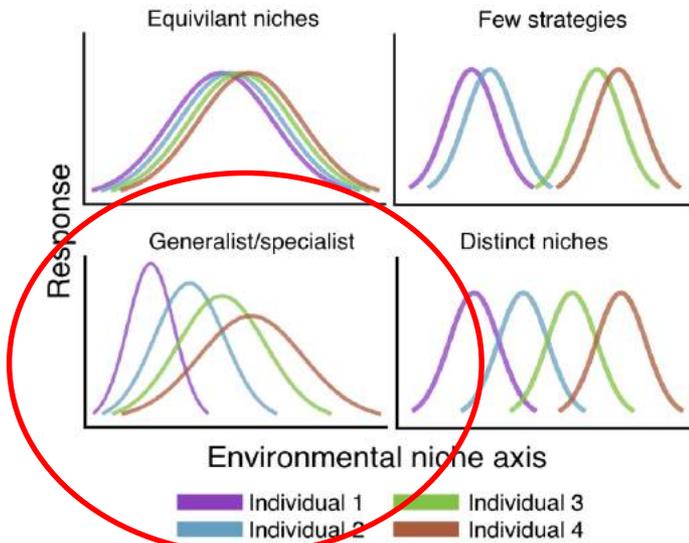
Compare individual and population niches



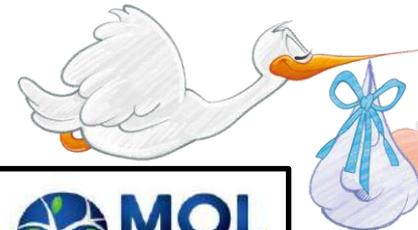
Distribution of specialization scores



How do individual niches vary?



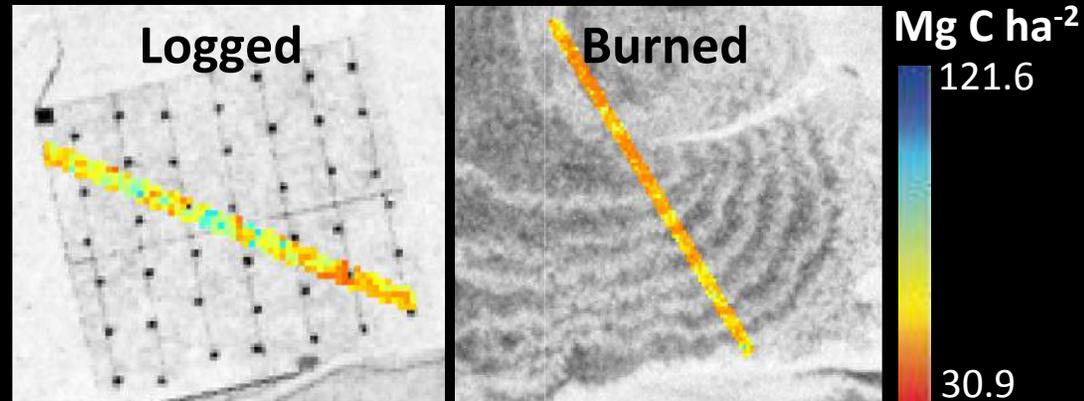
Thank you!



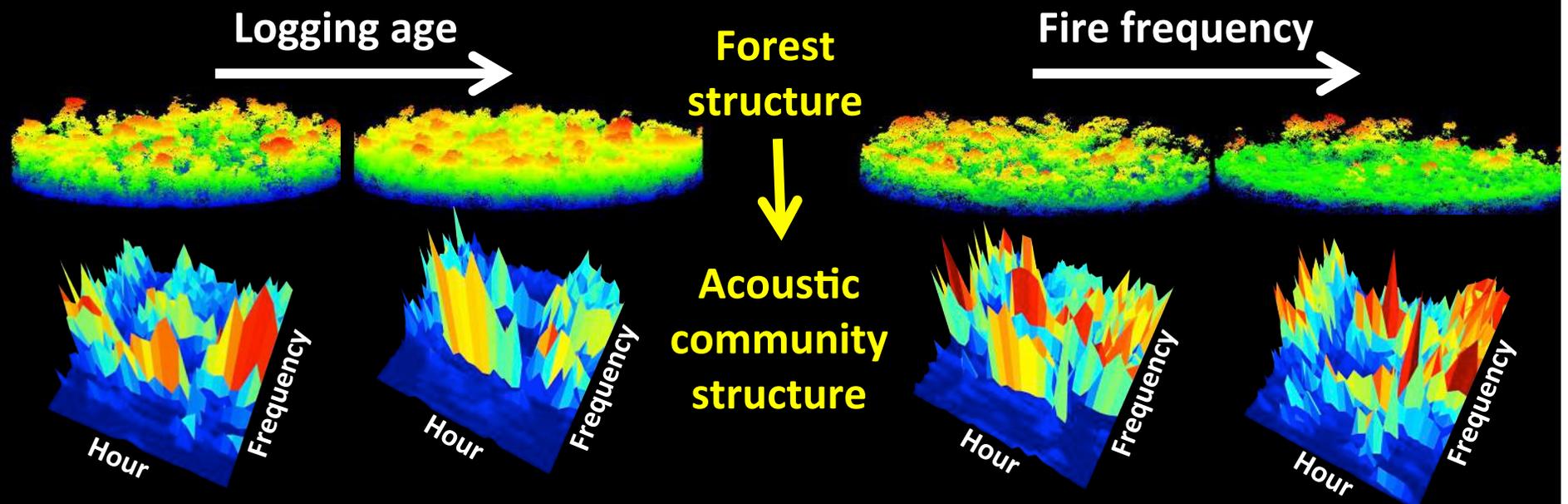
Integrating 3D data on sound and structure to measure the ecological legacy of Amazon forest degradation at the landscape scale

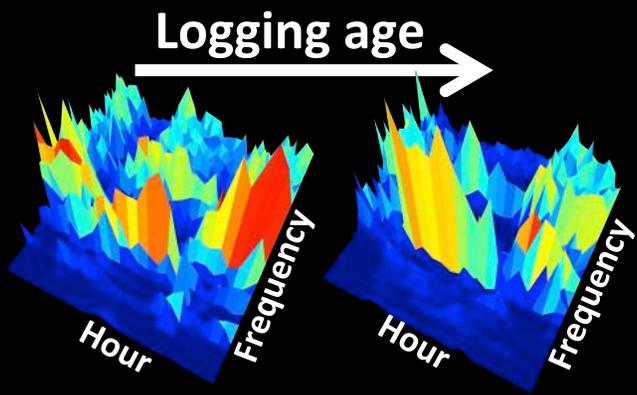
Danielle Rappaport, UMD

Ralph Dubayah, Doug Morton, Andy Royle



Degradation as land-use gradient





Occupied acoustic space as community fingerprint and habitat diagnostic

